

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,717,242 B2
APPLICATION NO. : 09/785194
DATED : April 6, 2004
INVENTOR(S) : Shinji Takeda et al.

Page 1 of 4

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Please delete all of the claims, numbered 1-6, from column 16, line 56 to column 18, line 16, and replace them with the following claims 1-41:

1. A process for fabricating a semiconductor device, comprising the step of:
bonding a semiconductor device to a support with an organic die-bonding film at conditions of temperature of 100-250°C and pressure of 0.1-30 gf/mm² to produce a bonded chip wherein the organic die-bonding film has a peel strength of 0.5 kgf/(5mm x 5mm chip) or higher.
2. A process according to claim 1, further comprising the step of:
encapsulating the bonded chip to produce the semiconductor device.
3. A process according to claim 1, wherein said step of bonding comprises bonding with an organic die-bonding film having a modulus of elasticity of 10 Mpa or less at a temperature of 250°C.
4. A process according to claim 3, wherein said step of bonding comprises bonding with an organic die-bonding film further having a water absorption of 1.5% by volume or less.
5. A process according to claim 4, wherein said step of bonding comprises bonding with an organic die-bonding film further having a residual volatile component in an amount of not more than 3.0% by weight.
6. A process according to claim 5, wherein said step of bonding comprises bonding with an organic die-bonding film further having a saturation moisture absorption of 1.0% by volume or less.
7. A process according to claim 6, wherein said step of bonding comprises bonding with an organic die-bonding film further having a void volume of 10% or less in terms of voids present in the material of the film, and at an interface between said film and said support at a stage where the semiconductor has been bonded to said support by said film.
8. A process according to claim 7, further comprising the step of:
encapsulating the bonded chip to produce the semiconductor device.
9. A process according to claim 1, wherein said die-bonding material is a film comprising one or more resins selected from the group consisting of silicone resin, acrylic resin, polyimide resin and epoxy resin.
10. A process according to claim 7, wherein said die-bonding material is a film comprising one or more resins selected from the group consisting of silicone resin, acrylic resin, polyimide resin and epoxy resin.
11. A process according to claim 8, wherein said die-bonding material is a film comprising one or more resins selected from the group consisting of silicone resin, acrylic resin, polyimide resin and epoxy resin.
12. A process according to claim 1, wherein said die-bonding material is a film comprising a polyimide resin and epoxy resin.

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13. A process according to claim 7, wherein said die-bonding material is a film comprising a polyimide resin and epoxy resin.
14. A process according to claim 8, wherein said die-bonding material is a film comprising a polyimide resin and epoxy resin.
15. A process according to claim 1, wherein said die-bonding material is a film comprising an acrylic resin and epoxy resin.
16. A process according to claim 7, wherein said die-bonding material is a film comprising an acrylic resin and epoxy resin.
17. A process according to claim 8, wherein said die-bonding material is a film comprising an acrylic resin and epoxy resin.
18. A process according to claim 1, wherein said die-bonding material is a film comprising a silicone resin.
19. A process according to claim 7, wherein said die-bonding material is a film comprising a silicone resin.
20. A process according to claim 8, wherein said die-bonding material is a film comprising a silicone resin.
21. A process according to claim 1, wherein said die-bonding material is a film comprising a silicone resin and epoxy resin.
22. A process according to claim 7, wherein said die-bonding material is a film comprising a silicone resin and epoxy resin.
23. A process according to claim 8, wherein said die-bonding material is a film comprising a silicone resin and epoxy resin.
24. 'A process according to claim 12, wherein the polyimide is a polyimide synthesized from a combination which is selected f consisting of a combination of 1,2-(ethylene)bis(trimellitate anhydride) and bis(4-amino-3,5-dimethylphenyl)methane; a combi (ethylene)bis(trimellitate anhydride) and 4,4'-diaminodiphenylether; a combination of 1,2,-(ethylene)bis(trimellitate anhydride) amino-3,5-diisopropylphenyl) methane; a combination of 1,2-(ethylene)bis(trimellitate anhydride) and 2,2-bis[4-(4-aminophenoxy)phenyl]propane; a combination of a mixture of 1,2-(ethylene)bis(trimellitate anhydride) and 1,10-(decamethylene)bis(trimellitate anhydride) being the same mol as the mixture and 2,2-bis[4-(4-aminophenoxy)phenyl]propane; combination of 1,10-(decamethylene)bis(trimellitate anhydride) and 2,2-bis[4-(4-aminophenoxy)phenyl]propane.
25. A process according to claim 1, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 2 seconds.
26. A process according to claim 7, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 2 seconds.

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27. A process according to claim 8, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 2 seconds.
28. A process according to claim 1, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 1.5 seconds.
29. A process according to claim 7, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 1.5 seconds.
30. A process according to claim 8, wherein said step of bonding is carried out with a bonding time of from 0.1 seconds (inclusive) to 1.5 seconds.
31. A process according to claim 1, wherein said step of bonding is carried out at a pressure of 0.1-4 gf/mm².
32. A process according to claim 7, wherein said step of bonding is carried out at a pressure of 0.1-4 gf/mm².
33. A process according to claim 8, wherein said step of bonding is carried out at a pressure of 0.1-4 gf/mm².
34. A process according to claim 25, wherein said step of bonding is carried out at a pressure of 0.1-4 gf/mm².
35. A process according to claim 28, wherein said step of bonding is carried out at a pressure of 0.1-4 gf/mm².
36. A process according to claim 1, wherein said step of bonding is carried out at a pressure of 0.3-2 gf/mm².
37. A process according to claim 7, wherein said step of bonding is carried out at a pressure of 0.3-2 gf/mm².
38. A process according to claim 8, wherein said step of bonding is carried out at a pressure of 0.3-2 gf/mm².
39. A process according to claim 25, wherein said step of bonding is carried out at a pressure of 0.3-2 gf/mm².
40. A process according to claim 28, wherein said step of bonding is carried out at a pressure of 0.3-2 gf/mm².

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41. A semiconductor device made by the process of claim 1.

Signed and Sealed this

Nineteenth Day of September, 2006

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looping initial "J" and a distinct "D" at the end.

JON W. DUDAS
Director of the United States Patent and Trademark Office